

WHAT IS CLAIMED IS:

1. A control system for canceling load unbalance of a three-phase circuit, comprising:

phase current detectors for detecting phase currents caused to flow through a secondary circuit of a current transformer provided in high voltage distribution lines, respectively;

a zero-phase current detector for detecting a zero-phase current caused to flow through a residual circuit of the current transformer;

phase change-over switches through which phases of the high voltage distribution lines, and primary sides of distribution transformers provided across high and low voltage distribution lines are connected to each other;

a control center for, when a magnitude of the zero-phase current detected by the zero-phase current detector is larger than a predetermined value, on the basis of the phase currents of the phases detected by the phase current detectors, respectively, outputting a control signal so that the load of the phase having a maximum current appearing therein is changed over to the phase having a minimum current recognized therein; and

a phase change-over slave station for controlling the phase change-over for the phase change-over switches in accordance with the control signal.

2. A control system for canceling load unbalance of a three-phase circuit according to claim 1, wherein the phase change-over switches have a first phase change-over switch and a second phase change-over switch connected in series with each other so that a first phase of the high voltage distribution lines is changed over to a second phase thereof, or the first phase thereof is changed over to a third phase thereof.

3. A control system for canceling load unbalance of a three-phase circuit according to claim 2, wherein each of the first and second phase change-over switches has a first terminal, a second terminal and a common terminal;

the first and second terminals of the first phase change-over switch are connected to the first and second phases of the high voltage distribution lines, respectively; and

the first and second terminals of the second phase change-over switch are connected to the third phase of the high voltage distribution lines and the common terminal of the first phase change-over switch, respectively, and the common terminal of the second phase change-over switch is connected to the primary sides of the distribution transformers.

4. A control system for canceling load unbalance of a three-phase circuit according to claim 1, wherein the control center

obtains a limit time for the phase change-over control corresponding to the zero-phase current detected by the zero-phase current detector, and outputs an alarm signal exhibiting that if the time limit elapses, then an over-current grounding relay connected to the residual circuit of the current transformer undergoes malfunction.

5. A control system for canceling load unbalance of a three-phase circuit according to claim 2, wherein the control center obtains a limit time for the phase change-over control corresponding to the zero-phase current detected by the zero-phase current detector, and outputs an alarm signal exhibiting that if the time limit elapses, then an over-current grounding relay connected to the residual circuit of the current transformer undergoes malfunction.

6. A control system for canceling load unbalance of a three-phase circuit according to claim 3, wherein the control center obtains a limit time for the phase change-over control corresponding to the zero-phase current detected by the zero-phase current detector, and outputs an alarm signal exhibiting that if the time limit elapses, then an over-current grounding relay connected to the residual circuit of the current transformer undergoes malfunction.